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Methamphetamine

Methamphetamine is an addictive stimulant drug that strongly activates certain systems in the brain. Methamphetamine is chemically related to amphetamine, but the central nervous system effects of methamphetamine are greater. Both drugs have some limited therapeutic uses, primarily in the treatment of obesity.

Methamphetamine is made in illegal laboratories and has a high potential for abuse and addiction. Street methamphetamine is referred to by many names, such as "speed," "meth," and "chalk." Methamphetamine hydrochloride, clear chunky crystals resembling ice, which can be inhaled by smoking, is referred to as "ice," "crystal," "glass," and "tina."

Health Hazards

Methamphetamine releases high levels of the neurotransmitter dopamine, which stimulates brain cells, enhancing mood and body movement. It also appears to have a neurotoxic effect, damaging brain cells that contain dopamine as well as serotonin, another neurotransmitter. Over time, methamphetamine appears to cause reduced levels of dopamine, which can result in symptoms like those of Parkinson's disease, a severe movement disorder.

Methamphetamine is taken orally or intranasally (snorting the powder), by intravenous injection, and by smoking. Immediately after smoking or intravenous injection, the methamphetamine user experiences an intense sensation, called a "rush" or "flash," that lasts only a few minutes and is described as extremely pleasurable. Oral or intranasal use produces euphoria—a high, but not a rush. Users may become addicted quickly, and use it with increasing frequency and in increasing doses.

Animal research going back more than 20 years shows that high doses of methamphetamine damage neuron cell endings. Dopamine- and serotonin-containing neurons do not die after methamphetamine use, but their nerve endings ("terminals") are cut back, and regrowth appears to be limited.

The central nervous system (CNS) actions that result from taking even small amounts of methamphetamine include increased wakefulness, increased physical activity, decreased appetite, increased respiration, hyperthermia, and euphoria. Other CNS effects include irritability, insomnia, confusion, tremors, convulsions, anxiety, paranoia, and aggressiveness. Hyperthermia and convulsions can result in death.

Methamphetamine causes increased heart rate and blood pressure and can cause irreversible damage to blood vessels in the brain, producing strokes. Other effects of methamphetamine include respiratory problems, irregular heartbeat, and extreme anorexia. Its use can result in cardiovascular collapse and death.

Extent of Use

Monitoring the Future Survey (MTF)*

MTF assesses the extent of drug use among adolescents (8th-, 10th-, and 12th-graders) and young adults across the country. Recent data from the survey indicate the following:

- In 2004, 6.2 percent of high school seniors had reported lifetime** use of methamphetamine, statistically unchanged from 2003. Lifetime use was measured at 5.3 percent of 10th grade students.
- Eighth-graders reported significant decreases in lifetime, annual, and 30-day use.

Community Epidemiology Work Group (CEWG)***

Results reported at the most recent CEWG meetings indicate that methamphetamine abuse and production continue at high levels in Hawaii, west coast areas, and some southwestern areas of the United States—but methamphetamine abuse also is continuing to spread eastward.

The percentage of adult male arrestees testing methamphetamine-positive in 2003 were highest in Honolulu (40.3 percent), Phoenix (38.3) San Diego (36.2), and Los Angeles (28.7).

Several other items of significance were reported, as follows:

- The numbers of clandestine methamphetamine laboratory incidents reported to the National Clandestine Laboratory Database decreased from 1999 to 2004. During this same period, methamphetamine lab incidents increased in midwestern States (Illinois, Michigan, and Ohio), and in Pennsylvania. In 2004, more lab incidents were reported in Illinois (926) than in California (673). In 2003, methamphetamine lab incidents reached new highs in Georgia (250), Minnesota (309), and Texas (677). There were only seven methamphetamine lab incidents reported in Hawaii in 2004.
- In the first 6 months of 2004, nearly 59 percent of substance abuse treatment admissions (excluding alcohol) in Hawaii were for primary methamphetamine abuse. San Diego followed, with nearly 51 percent. Notable increases in methamphetamine treatment admissions occurred in Atlanta (10.6 percent in the first 6 months of 2004, as compared with 2.5 percent in 2001) and Minneapolis/St. Paul (18.7 percent in the first 6 months of

2004, as compared with 10.6 percent in 2001).

- Some MDMA (ecstasy) and cocaine users are switching to methamphetamine, ignorant of its severe toxicity.
- In many gay clubs found throughout New York City and elsewhere, methamphetamine is often used in an injectable form, placing users and their partners at risk for transmission of HIV, hepatitis C, and other STDs.

*National Survey on Drug Use and Health (NSDUH)*****

According to the 2003 NSDUH, 12.3 million Americans age 12 and older had tried methamphetamine at least once in their lifetimes (5.2 percent of the population), with the majority of past-year users between 18 and 34 years of age. Significant decreases in past year use were seen among 12- to 17-year-olds.

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* These data are from the 2004 Monitoring the Future Survey, funded by the National Institute on Drug Abuse, National Institutes of Health, DHHS, and conducted by the University of Michigan's Institute for Social Research. The survey has tracked 12th-graders' illicit drug use and related attitudes since 1975; in 1991, 8th- and 10th-graders were added to the study. The latest data are online at www.drugabuse.gov.

** "Lifetime" refers to use at least once during a respondent's lifetime. "Annual" refers to use at least once during the year preceding an individual's response to the survey. "30-day" refers to use at least once during the 30 days preceding an individual's response to the survey.

*** CEWG is a NIDA-sponsored network of researchers from 21 major U.S. metropolitan areas and selected foreign countries who meet semiannually to discuss the latest epidemiology of drug abuse. CEWG's most recent reports are available at www.drugabuse.gov/about/organization/cewg/pubs.html.

**** NSDUH (formerly known as the National Household Survey on Drug Abuse) is an annual survey of Americans age 12 and older conducted by the Substance Abuse and Mental Health Services Administration. Copies of the latest survey are available at www.samhsa.gov and from the National Clearinghouse for Alcohol and Drug Information at 1-800-729-6686.

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